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Cancer Mortality in Cuba and Among the Cuban-Born in the United States: 1979–81

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This research was supported by Grant No. HD20089, National Institute of Child Health and Human Development.

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Synopsis

The Cuban-born population of the United States, enumerated at 608,000 in the 1980 census, has been little studied with regard to cancer mortality. Being older and rarely migrating back to Cuba, Cuban Americans present a good subject for comparative cancer mortality. Age-adjusted death rates for selected causes of cancer are compared in this paper for Cubans in Cuba, the Cuban-born in the United States, and all whites in the United States.

Two forms of cancer have been of particular concern

in Cuba, cancer of the lung and cancer of the prostate, because of their relatively high death rates. The age-adjusted death rates for both of these cancers are lower among the Cuban-born in the United States than they are among Cubans in Cuba and whites in the United States. Death rates for cancer of the cervix and cancer of the rectum among the Cuban-born in this country are also low relative to Cubans in Cuba and whites in the United States. Stomach cancer mortality among Cuban-born men in the United States is lower than for men in Cuba or for white men in the United States, but Cuban-born women in this country have rates that are slightly higher than those of U.S. white women. Mortality rates from colon cancer in both sexes and breast cancer among women are intermediate between the lower rates in Cuba and the higher rates among U.S. whites. Finally, the Cuban-born in the United States have higher death rates from cancer of the liver than do Cubans in Cuba or whites in the United States.

In general, the profile found for the Cuban-born in the United States reflects the high socioeconomic status of the pre-1980 migrants as well as their exposure to the U.S. environment.

CUBAN IMMIGRANTS to the United States constitute an interesting group for the study of health and migration. They are older and include enough people of the ages at which cancer becomes a major cause of mortality. In the 1980 census (as of April 1), they numbered 608,000 (1). Also, because of the political nature of the migration, there has been relatively little reverse migration. For cancer research it is especially important that immigrants experience a long and relatively uninterrupted period in a new society, since many cancers develop over decades following exposure. When mortality is the end-point, the period is even longer (2).

On the other hand, there are limitations regarding the comparative study of cancers among Cubans on the island and the Cuban-born in the United States. Cuban

immigrants are not a representative cross-section of the Cuban population and, until recently, have been disproportionately affluent, urban, older, and well-educated, with white collar occupations. All of these characteristics are known to be associated with certain forms of cancer. In addition, epidemiologists have pointed out that persons who choose to migrate are a selective population of the healthy (3). Therefore, on the average, we might expect that those who left Cuba tended to be in relatively good health, at least prior to 1980.

Before the 1959 Cuban revolution, mortality in Cuba was typical of developing countries, with a low life expectancy at birth, 58 years in 1959 (4), and with relatively high rates of infectious and parasitic diseases (5). By 1989, Cuban life expectancy had reached 74 years,

compared with 75 in the United States (6). This increase was due largely to the establishment of medical schools and to public health measures taken to provide the entire population with primary health care (4). As a result, the major causes of death are now cardiovascular diseases and cancers, typical of countries at a high level of social and economic development.

The most important form of cancer among men in Cuba is cancer of the lung. Statistics published by the Pan American Health Organization at the beginning of the 1970s show that the age-adjusted death rate for lung cancer (standardized to a Latin American 1960 population) for Cuban males was the fourth highest in the Americas, although lower than the U.S. rate (7). Cuban women had the highest death rate from lung cancer in the Americas. By the early 1980s, the rate for men was the fifth highest, while the rate for women was the second highest after the United States (8 and table 1).

The causes of the relatively high mortality rates from lung cancer in Cuba have been attributed to the extremely high per capita cigarette consumption, one of the highest in the world (4). In a study of the incidence of lung cancer in Havana, Joly and coworkers found that an additional factor was the use of dark tobacco and nonfilter cigarettes (9). Since 1983 there has been an intensification in Cuba of the public health campaign against smoking to reduce lung cancer (4).

Prostate cancer is a serious health problem in Cuba and was the second leading cause of cancer death after lung cancer among men in Cuba during the 1970s (10) and early 1980s (8). While the death rates from prostate cancer for Cuban males are intermediate for the Americas as are those of the United States, Cuban rates exceed those of U.S. males (8). Attempts to reduce mortality by irradiation are ongoing in Cuba (10).

The breast was the most important site of cancer among women in Cuba as it was among women in the United States in 1979-81 (11). By 1985 breast cancer was surpassed by lung cancer among women (12). Compared with the United States, breast cancer death rates in Cuba are relatively low as they are in many Latin American countries. In the early 1970s, Cuba ranked eighth of 22 countries in the Americas for breast cancer, while the United States ranked third (7). By the early 1980s, Cuba ranked 11th while the United States ranked 6th (8). With respect to breast cancer incidence worldwide, Cuba ranked intermediate among nations studied in 1970, while women in Connecticut ranked among the highest (13). There have been a number of clinical studies of survivorship among small groups of patients treated for breast cancer at the National Institute of Oncology in Havana (14-20).

The remaining studies discussed in this paper involve cancer incidence in small numbers of patients. Thyroid cancer incidence in Cuba has been compared with that

Table 1. Age-adjusted death rates¹ per 100,000 population from selected causes of cancer in Cuba and in the United States by sex, 1969-72 and 1981-83

Cause	² 1969-72		³ 1981-83	
	Cuba	U.S.	Cuba	U.S.
Men:				
Lung (trachea and bronchus) ..	24.3	6.9	21.6	31.6
Stomach	7.9	4.5	4.9	3.2
Women:				
Lung (trachea and bronchus) ..	8.7	5.8	8.1	11.5
Breast	9.1	13.8	8.9	13.5
Stomach	3.8	2.2	2.5	1.6
Cervix uteri.....	3.4	3.4	3.2	1.9

¹Age-adjusted to a 1960 Latin American population.

²Reference 7.

³Reference 8.

in United States and in other registries (21). Cuban rates are of interest since Cuba is one of the countries that has used radiation therapy for benign conditions of the head and neck. Use of radiation therapy in childhood conditions is believed to be linked to the incidence of thyroid cancer in young adult females (21).

Other studies of cancer incidence in Cuba involve relatively uncommon cancers, such as three cases of bladder cancer in Cubans that were uncovered by endoscopic study for schistosomiasis (22), cancer of the oral cavity (23), nasopharyngeal cancer (24, 25), gastric cancer (26), Burkitt's lymphoma (27), and a number of studies of malignant tumors in children (28, 29).

Very little has been published on cancer among the Cuban-born in the United States. To my knowledge, only three publications deal with cancer in this population. Rosenwaike (30) discussed mortality among the Cuban-born, including cancer mortality, in comparison with other Hispanic subgroups in the United States, the Mexican born and Puerto Rican born. Although all three subpopulations have cancer death rates lower than that of United States whites and blacks, the Cuban born had the highest death rate among Hispanic subgroups for all cancers. The same pattern held for lung cancer among Cuban-born men and for breast cancer among women. The exception to the profile was lung cancer among Cuban-born women which was lower than among Mexican-born women, as well as whites and blacks in this country (30).

Rosenwaike and Shai (31) examined cancer mortality among the Cuban-born in the United States before and after the Mariel migration of 1980. They found a small decrease of 1.4 percent in the age-adjusted death rates for malignant neoplasms—a 2-percent increase for men and a 4.8-percent decrease for women. For cancer, as well as for the other leading causes of death, there was little impact among the Cuban-born in the United States as a result of the new wave of migration (31).

One other study of cancer among the Cuban-born in

Table 2. Age-adjusted death rates per 100,000 population, ages 5 and older, for selected causes of cancer among Cubans, the Cuban-born in the United States, and whites in the United States by sex

Cancer site	Cubans in Cuba ¹ 1981	Cuban-born in U.S. 1979-81	All whites in U.S. ² 1979-81
Men:			
Lung (trachea and bronchus) ..	60.6	58.7	81.8
Colon	11.3	17.6	24.4
Prostate	26.6	22.8	25.9
Stomach	15.3	6.4	9.1
Liver	2.2	6.0	3.4
Rectum	3.9	3.6	5.6
Women:			
Lung (trachea and bronchus) ..	18.6	13.5	23.8
Breast	20.4	24.1	30.4
Colon	12.6	16.0	18.5
Stomach	7.0	4.7	4.4
Liver	1.4	3.4	1.8
Rectum	3.8	3.1	3.3
Cervix uteri	5.3	2.4	3.6

¹Reference 39.

²Reference 50.

the United States has been published. It is a report of a very rare form of gastric cancer (paraganglioneuroma of the duodenum), involving a case of a Cuban migrant in the United States (32).

Background

The pre-1980 immigrants from Cuba were a highly select group, a fact that is reflected in their generally favorable mortality profile. Even before Fidel Castro took power, much of the Cuban middle class travelled to the United States for various reasons, including health care (33). After the 1959 revolution in Cuba, the earliest migrants were the most affluent supporters of the fallen regime—the upper classes, professionals, and small merchants (34). The middle classes were especially well-represented among those who migrated in 1960 after the Cuban class system was restructured (35). Sometimes referred to as the “Golden Exiles,” these early migrants were disproportionately of the white-collar professions, although virtually all occupations were represented (36). In all, between 1959 and 1962, approximately 215,000 Cubans arrived in the United States (34). From 1962 to 1965, it became more difficult to leave Cuba, and only about 74,000 migrated (34). In 1965, an airlift brought 340,000 additional refugees of increasingly lower middle and urban working class background (34).

In 1980, the Mariel migration brought approximately 125,000 persons, increasing the Cuban-born population in the United States by about 17 percent. Although many of the Mariel migrants were of the same socioeconomic groups as those who had migrated prior to

1980, others were not and were forced to migrate. There were large number of young males, unaccompanied by families, and 40 percent of the migrants were black Cubans (37). Since the Mariel migrants were generally very youthful, they have not yet reached an age at which cancer would be an important cause of mortality. Beyond that, Mariel migrants arrived during a period of recession, inflation, and unemployment in the United States (37), and they were not given government assistance to the extent offered to earlier Cuban migrants. Because of these economic problems as well as prejudice against the boatlift in general, they came into the Cuban-American community at the lower strata, researchers have found (37). In the future, we might expect to see the cancer profile, which is presently typical of the affluent, change to one which reflects a more heterogeneous population, including a sizable working class.

Since the 1960s, Florida has had the largest concentration of Cuban Americans, especially in metropolitan Miami. By 1980, 52 percent of the Cuban-born population in the United States lived in the Miami metropolitan area (34). Scott claims that Cubans in Miami have been able to duplicate their entire health care system, including the manufacture of medicines previously produced in Cuba (38). Not only do Cubans appear to be making full use of the medical resources available to them in Miami, but so many Cuban health professionals have entered the United States health system, that “when a Cuban goes to the public health clinics or to Jackson Memorial Hospital, the university teaching hospital, he is often cared for by Cuban nurses, physicians, technicians, or social workers” (38).

Public health in Cuba has been greatly affected by the 1959 revolution. Medical care has been dispersed more evenly over the island to improve health in the countryside (36). Sanitation and vaccination campaigns have improved public health so that the life expectancy is almost that of the average American.

Materials and Methods

Data for calculating the age-adjusted death rates for various causes of cancer in Cuba, both deaths and population figures, come from the tabulations of the 1985 World Health Statistics Annual (39). The data used for the Cuban-born population in the United States came from the National Center for Health Statistics (NCHS) and the U.S. Bureau of the Census. Death statistics were taken from the NCHS public-use mortality tapes for 1979-81. Deaths for United States residents were classified by cause of death, age, sex, and place of birth (Cuba). Population data for persons younger than 65 born in Cuba are from unpublished statistics of the Bureau of the Census (40). Data on ages 65 and older

were available from published statistics (41). The Public Use Microdata 5 Percent Sample was used to estimate distributions by age and sex for 5-year age groups (42).

Cancer deaths of Mariel migrants are included in the numerators but not in the denominators, since that population entered the United States after the 1980 census (31). This migration had little impact on cancer mortality, however (31).

All death rates are based on 3-year averages of deaths and expressed per 100,000 population. Specific causes of cancer were coded according to the 9th Revision of the International Classification of Diseases (43). The age-adjusted death rates for Cuba, the Cuban-born in the United States, and whites in the United States were computed by direct standardization, using the U.S. population in 1980, 5 years of age and older, as the standard. Only deaths of persons 5 years of age and older are considered in this report.

Findings

A comparison of age-adjusted death rates from selected forms of cancer is shown in table 2. These rates are age-adjusted to the 1980 U.S. population and are not directly comparable to the published rates for two reasons. The rates in table 1 were from data standardized to a Latin American population in 1960. Additionally, the published rates were compared with the total U.S. population, while our findings are compared only with whites in the United States. The two data sets reflect the same trends, however. Men in Cuba have higher death rates for cancer of the prostate and the stomach than do either the Cuban-born or other whites in the United States. Cuban men have particularly low rates for cancers of the colon and liver. Mortality from lung cancer is almost identical for Cubans and the United States Cuban-born. Both rates are lower than those for whites in the United States.

Cuban women have higher death rates from lung and related cancers and stomach, rectal, and cervical cancer than Cuban-born women in the United States. Cuban women have the lowest rates for breast and liver cancer (table 2). For the most important causes, lung and breast cancer, the death rates of white women in the United States exceed those of the two other populations.

In the search for environmental and lifestyle factors that affect cancer, two approaches are common. One compares cancer mortality and incidence among migrants with the population in their home country and the population in the country of destination. An issue to consider is that migration often involves the healthiest (3), and therefore the migrants are not always a representative sample of the home population. Another issue is that cancer usually takes a long period to develop and

may not appear until the migrants are older or even for several generations (2).

A second approach involves comparing cancer profiles for persons on different socioeconomic levels. Where differences are found, the causes may be a complicated set of factors including lifestyle, diet, occupation, and access to medical services. Access is especially important because low income patients may not seek preventive services and may delay turning to a physician for help until the cancer is at an advanced stage (44). Breast cancer has been found to occur more frequently among the affluent (45), while cancers of the stomach, cervix, and liver have greater incidence among the poor (46).

The finding that Cuban-born women in the United States have higher rates of death from cancer of the breast than women in Cuba is not entirely surprising, given the fact that migrants were drawn from the more affluent population. Also, studies have shown that when women migrate to the United States from countries that have lower levels of breast cancer (as does Cuba), they experience a rise in breast cancer rates (45). Unfortunately, we have no way to differentiate at this point between death rates that reflect high socioeconomic status and those which are due to exposure to the United States environment.

Stomach cancer is considered to be strongly affected by early exposure and therefore is expected to reflect conditions in the country of origin. The lower death rates among Cuban migrants (even lower among men than for white men in the United States) suggests that migration was selective of the wealthier Cubans who would be at lower risk of stomach cancer. The very low rates of death for cancer of the cervix among Cuban-born women in the United States also follow the general finding for that cause, that rates are low among the affluent (46). On the other hand, the death rates for cancer of the liver show a reverse trend with elevated rates for Cuban-born men and women. Studies of cancer deaths among the foreign-born in the United States, however, have shown that most migrant populations have experienced increased death rates from cancer of the liver despite the varied patterns in their countries of origin (47).

Mortality from cancer of the prostate is lower among the Cuban-born in the United States (table 2). The lower rates may reflect the selective migration of healthier individuals. Otherwise, studies have found this cancer to reach higher levels for migrants in a host country and thus be associated with the movement of adults to a new environment (48). Cancers of the colon and rectum are thought to be environmental in origin, although the causes are not well established (49). These cancers are associated with a high level of industrialization as well as diet and chemical carcinogens (49). The

United States has relatively high rates, and my findings show that Cuban-born men and women have rates midway between those in Cuba and those among whites in the United States. The Cuban-born in the United States have lower death rates for cancer of the rectum than either Cubans or U.S. whites. Studies of the accuracy of death certificate diagnoses have shown, however, that deaths from rectal cancer are often certified as due to colon cancer (12). Therefore these two causes should be viewed in combination as intermediate for the Cuban-born in the United States.

Conclusion

Although the Cuban-born have a relatively favorable cancer profile compared with other whites in the United States, they have higher death rates than Cubans in Cuba for cancers of the colon, liver, and breast. Their death rates for cancer of the liver are higher than those of whites in the United States as well. On the other hand, the U.S. Cuban-born have relatively low death rates for cancers of the stomach, lung, and cervix compared with the white population in both Cuba and the United States. Since this pattern is typical of relatively affluent populations, more research is necessary to separate the effects of lifestyle and environment. Also, since cancers develop over long periods and appear mainly in persons of older ages, it may be that more time needs to elapse to confirm the trends indicated in this study.

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Use of Process Evaluation to Guide Health Education in Forsyth County's Project to Prevent Cervical Cancer

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This work is funded by the National Cancer Institute, contract NCI-NO1-CN-65034.

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Synopsis

The Forsyth County, NC, Cervical Cancer Prevention Project is a 5-year public health education program designed to increase the proportion of black women in the county who are appropriately screened for cervical cancer. In this paper, the authors report on process evaluation—the procedures used to monitor the intervention and to insure that the target population was reached with a high quality, community-based health education program.

A system that encompasses documentation of program activities, interviews with women in waiting rooms of primary care providers, semiannual interviews with a panel of approximately 100 women from the target population, and telephone followup with participants in direct education workshops was designed and implemented. Through October 1990, more than 2,100 interviews had been conducted. Data from these activities have facilitated continued development and refinement of educational materials, provided guidance for developing new strategies for reaching the target population, and provided continuous feedback to program managers to allow monitoring the impact of all program activities.